



EPA expressed env. concerns based on potential impacts to water quality & the marine env. from timber harvest & road building activities.

EC-2
960009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

March 15, 1996

Reply To
Attn Of: ECO-088

REF:96-009-AFS

Bill Nightingale
Planning Forester
Ketchikan Ranger District
Tongass National Forest
3031 Tongass
Ketchikan, Alaska 99901

Dear Mr. Nightingale:

In accordance with our responsibilities under the National Environmental Policy Act and §309 of the Clean Air Act, we have reviewed the Draft Environmental Impact Statement (draft EIS) for the proposed **Upper Carroll Timber Sale**. The draft EIS analyzes four action alternatives to harvest between 37 and 77 million board feet of timber from a project area of about 48,000 acres on Revillagigedo (Revilla) Island, northeast of Ketchikan, Alaska.

Based on our review, we have rated the draft EIS EC-2 (Environmental Concerns - Insufficient Information). This rating and a summary of our comments will be published in the *Federal Register*.

Our primary concerns, which are related to the potential impacts of the project on water quality and the marine environment, are highlighted below.

- 1) From a water quality and fish habitat perspective, we feel that the technical analyses (particularly the watershed analyses presented in Appendix F) do not support the selection of Alternative 5 as the preferred alternative. We believe that Alternatives 3 and 4 are better supported by the analyses in the EIS, with Alternative 3 being the environmentally-preferred alternative.
- 2) We believe that roads presently proposed to be constructed within riparian buffer areas conflict with the intended goals of protecting water quality and fish habitat and recommend that alternative alignments (which avoid these areas) be identified. We also believe that the EIS needs additional clarifying information related to proposed road maintenance and closure procedures to be employed.
- 3) We are pleased to see the incorporation of watershed analyses and effectiveness monitoring into the planning process for this timber sale. We offer some suggestions (see

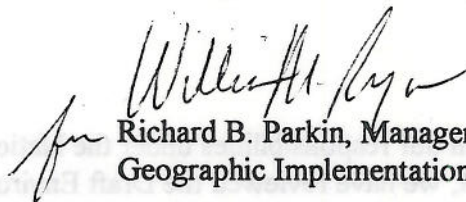
enclosure) on how the validity of the sediment transfer and deposition modeling approach used could be evaluated using water monitoring data.

- 4) We believe that additional information related to Log Transfer Facilities (LTFs) should be included in the final EIS.

Enclosed please find our detailed comments, which elaborate further on these issues as well as other areas of concern we believe need to be addressed in the final EIS. We are interested in working closely with the Forest Service in the resolution of these issues and I encourage you to contact Bill Ryan at (206) 553-8561 at your earliest convenience to discuss our comments and how they might best be addressed.

Thank you for the opportunity to review this draft EIS.

Sincerely,


Richard B. Parkin, Manager
Geographic Implementation Unit

Enclosure

cc: Jim Ferguson, ADEC
NMFS
ADFG
COE-Alaska District

Detailed Comments for
Upper Carroll Timber Sale
Draft Environmental Impact Statement (draft EIS)

Selection of Preferred Alternative

While we are pleased to see the integration of an analysis of sediment transport and deposition potentials for the watersheds within the project area, we are concerned that the results of those analyses, which were field reviewed by hydrologists and fisheries biologists, are not fully reflected in the preferred alternative (Alternative 5). Sub-basins S4 and S5 within the Carroll River watershed are identified in Appendix F as having the highest sediment transfer potential in the watershed (posing a high potential risk to water quality and fish habitat), yet road construction and harvest activities are proposed for both areas. Interestingly, results for the Neets Creek watershed indicates that seven (7) sub-basins/reaches are high risk sediment areas and the preferred alternative indicates no entry is planned for these areas. It is difficult to determine why the results for the Neets Bay watershed are supported by the selection of the preferred alternative but those conducted for the Carroll River watershed are not. The EIS presents no information explaining how the results of these analyses were used in the ultimate selection of Alternative 5 as the preferred alternative. We believe that the final EIS should include a discussion of how the use of this newly-introduced modeling procedure fits into the timber sale planning process, particularly since there appear to be conflicts between what the model is showing, and the action the Forest Service is proposing to take.

Based on the information presented in the draft EIS, we believe that Alternatives 3 and 4 are the action alternatives best supported by the analyses conducted. We believe that Alternative 3 is the most environmentally-preferable alternative of the action alternatives presently under consideration.

Road Construction, Maintenance and Closure

Table 2-2 of the draft EIS indicates that 45 miles of "specified" roads and 16 miles of temporary roads would be constructed with the implementation of Alternative 5. Based on the information presented in the EIS, we are unable to determine the location of the proposed permanent and temporary roads. Because different design, construction, maintenance, and closure considerations are likely to be applied to the different roadway types proposed for construction, we believe that it is important for the EIS to disclose the spatial distribution of these roads. Equally important is a clear indication of the types of maintenance activities and/or closure methods for the different road types developed to support the proposed timber harvest. While the discussion on page 3-328 related to road disposition does indicate that certain roads will be maintained as Level 1 or Level 2 roads upon completion of harvesting activities, we believe that the EIS should indicate graphically (i.e., on a map) where the roads receiving Level 1 and Level 2 maintenance would be located. Similarly, the EIS indicates that temporary roads will be closed,

yet does not indicate that their closure will be performed in accordance with BMP 14.24. We assume all temporary and short-term roads developed as part of this timber sale will be obliterated as prescribed in BMP 14.24. This is important that proper road maintenance and closure activities are applied to mitigate impacts of roadways on water quality and fish habitat.

We are also concerned that some roads would be constructed within TTRA-defined buffers and riparian areas. The discussion of these roads on page 3-321 of the draft EIS fails to indicate why such roadway segments are necessary. Because these areas have been established specifically to provide protections to water quality and fish habitat, we do not see that building roads within them is consistent with those goals. We strongly recommend that alternative roadway alignments (outside these buffer areas) be identified and included in the final EIS to ensure that the intended goals of establishing the riparian buffer areas will be met.

Watershed Analyses

We are encouraged by the incorporation of the sediment transfer and deposition analyses for the Carroll River and Neets Creek watersheds into the EIS analyses. We believe analyses such as these provide useful planning information for identifying areas of high potential vulnerability to sediment generation, transport, and accumulation. We strongly encourage the Forest Service to continue the use of this tool in conjunction with additional analyses designed to establish the validity of the predicted results "on the ground." To that end, we offer the following suggestions to augment the proposed monitoring effort for the project area in a way that would allow for some validation of the sediment transfer and deposition analyses conducted, as well as to evaluate the effectiveness of BMPs.

- 1) Conduct monitoring in a selected set of sub-basins and reaches identified in the EIS analyses to be most sensitive to sediment transport or deposition. For the Upper Carroll project area, this would include areas S4, S5, and R4 for the Carroll River watershed and areas S1 through S7 and R1 through R4 for the Neets Creek watershed. To evaluate the modeling approach used, monitoring should be conducted in sub-basins/reaches where harvesting would take place as well as those where it would not take place.
- 2) Monitor for suspended sediments and the accumulation of fine sediments in gravels in selected sub-basins/reaches both before and after project implementation. This provides a basis for evaluating the water quality impacts associated with the implementation of BMPs (or lack thereof) as well as determining the ability of the modeling approach to predict potential problems related to water quality degradation.
- 3) Compare results generated for sub-basins/reaches in areas with and without road construction and timber harvest activity to evaluate the validity of the modeling conducted as part of the EIS analyses.

Monitoring

We agree fully with BMP 11.6 (Soil and Water Conservation Handbook, FSH 2509.22) that "monitoring is an essential part of all BMPs as well as the overall BMP process." Consequently, we are pleased to see the proposal to conduct two water quality-related effectiveness monitoring studies as part of this project. We believe these types of studies are essential for gaining an understanding of the effectiveness of applied BMPs in protecting water quality and fish habitat. We are, however, concerned with the statement in the EIS that "all monitoring is subject to funding and personnel limitations imposed upon the Agency." While we are well aware of fiscal constraints under which all Federal agencies must operate these days, we believe that "effectiveness" monitoring is an important element of the BMP "system." This system includes the following elements:

- 1) BMP design
- 2) BMP application
- 3) Monitoring
- 4) Evaluation
- 5) Reporting
- 6) BMP re-design (if necessary)

Without a balanced approach to funding each component of the BMP process, we do not believe that BMP 11.6 can be adequately implemented. The last statement of the first paragraph on page 2-48 of the draft EIS suggests that the monitoring component (and the important steps that follow) may be vulnerable to budgetary constraints, irrespective of the merits of those efforts and the important role they play in Forest planning activities. We trust that this is not the case and recommend that such a statement be eliminated from the EIS.

Additionally, consistent with BMP 11.6, we recommend that you coordinate the development of the proposed monitoring studies with the Alaska Department of Environmental Conservation.

Log Transfer Facilities (LTFs)

General Comments

The final EIS should summarize existing state and federal regulations, the Alaska Timber Task Force Guidelines, and appropriate Best Management Practices aimed at minimizing environmental impacts of LTFs.

The proposed action alternatives would utilize two (2) to three (3) log transfer facilities to be selected from 3 existing LTFs at Shrimp Bay, Fire Cove, and Shelter Cove and a potential new LTF at Carroll Inlet. The draft EIS does not adequately address the potential site-specific impacts to the marine environment from continued operation of the existing LTFs or the development of a

new LTF. This information is needed to support both the Alaska Timber Task Force (ATTF) guidelines and the description of the environmental requirements pursuant to NEPA. These impacts may be significant, and therefore require further evaluation in the final EIS.

Alaska Timber Task Force Guidelines

The USDA Forest Service has adopted the "Log Transfer Facility Siting, Construction, Operation, and Monitoring/Reporting Guidelines developed by the Alaska Timber Task Force." The ATTF guidelines were developed by private, public, and resource agency personnel to develop management practices to minimize adverse environmental impacts of LTFs. The final EIS should include a discussion on how the continued operation of the existing LTFs and the establishment of a new LTF would comply with the ATTF guidelines for Construction, Operation, and Monitoring/Reporting. These guidelines should be included as an appendix to the EIS.

The draft EIS provides no information on how the operation of the LTFs would comply with the ATTF Guidelines for Operation. Additional discussions are needed to determine whether the LTFs would be managed for the following:

- C5. Solid waste;
- C6. Bark accumulation;
- C7. Bundle speed;
- C8. Surface drainage;
- C9. Hydrocarbons;
- C10. Onshore log storage;
- C11. facility maintenance and reclamation.

In addition, the draft EIS does not indicate how the operation of the LTFs would comply with the ATTF guidelines for Monitoring/Reporting. The final EIS should present information on how existing and new LTF sites would be monitored for:

- M3. Bark accumulation (M4. Elements of bark accumulation monitoring should include but not be limited to the following:
 - a. permanent transects
 - b. measurements of areal extent, outer boundary, thickness and percent coverage of bark debris. As mentioned in the Site Specific Information section, the final EIS should provide information on the existing conditions of the LTF sites through underwater dive surveys);
- M5. Oil sheen;
- M6. Upland discharges.

Existing State and Federal Regulations

In 1983, the EPA determined that the discharge of bark and other woody debris from log transfer into marine waters constitutes a point source discharge, and therefore, requires a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean

Water Act (CWA). The NPDES permit is based on state water quality standards and/or effluent standards promulgated by EPA under the CWA. Since there are no effluent standards for LTFs, NPDES permits are based on EPA's best professional judgement. Permit conditions rely on Best Management Practices (BMPs) and monitoring procedures in the ATTF Guidelines.

In addition, the Corps of Engineers regulates construction of log transfer facilities through Section 404 of the CWA. A Section 404 permit is required for the discharge of dredged or fill material into waters of the United States.

The State of Alaska, Department of Environmental Conservation authorizes, in accordance with the Alaska Water Quality Standards (WQS), section 18 AAC 70.033, a Zone of Deposit (ZOD) for accumulation of bark and woody debris on the bottom of marine waters at the LTF. Typically, the ZOD may not exceed both one (1) acre of continuous coverage and a thickness of 10 centimeters at any point. The ZOD may include patchy or discontinuous coverage in addition to one (1) acre of continuous coverage. The ZOD must be located on the ocean bottom directly between the log transfer device and the minus-60-foot contour MLLW, including the log bundle rafting area.

The draft EIS does not indicate if any of the existing LTFs have the requisite permits to operate. Additionally, the EIS does not indicate whether permits have been obtained (or the permitting process has been initiated) for the new LTF proposed at Carroll Inlet. The final EIS should clearly indicate the type of permit and/or authorizations received, to date.

The EPA is currently developing a general permit (GP) for the authorization to discharge under the NPDES for LTFs in Alaska. After the GP is issued, all new and existing LTFs, including those constructed prior to October 22, 1985, will be required to submit a notice of intent (NOI) to be covered under the NPDES GP. The NOI will require dive reports documenting existing bark deposits and biological resources.

Best Management Practices

The achievement of Water Quality Standards from point and non-point source activities may occur through the implementation of Best Management Practices (BMPs) designed to protect beneficial uses. The final EIS should provide a description of BMPs which will be employed to minimize the discharge of bark, woody debris, and other pollutants from the existing LTFs. In addition, BMPs should be developed to control surface drainage, hydrocarbons, onshore log storage, log rafting, log bundling, etc. These BMPs could include the guidelines set forth by the Alaska Timber Task Force.

Site-specific Comments

The draft EIS provides very little site-specific information related to current conditions for each of the three existing LTFs and the single new LTF proposed for possible use. For example, the footnote to Table 3-139 indicates that the three existing LTFs have been or will be reconstructed and "meet all applicable EPA requirements," yet fails to indicate what those

requirements are. If all requirements necessary to obtain a NPDES permit have been satisfied, results from underwater dive surveys should be available for the Shrimp Bay, Fire Cove, and Shelter Cove LTFs. This information should be presented in the EIS.

The EIS also presents the results from a 1983 dive survey to support the selection of the Carroll Inlet (#7) site as a location for a new LTF. Unfortunately, the EIS fails to provide sufficient information to determine whether the results of the dive are relevant to current conditions. This is of particular concern when the EIS portrays the results of the dive survey (see Appendix G) as a thorough evaluation of proposed LTFs in accordance with Alaska Timber Task Force (ATTF) guidelines. These guidelines were not finalized until 1985, two years after the dive was completed. Because a current dive survey would be required before a NPDES permit would be issued for the Carroll Inlet LTF, we recommend that the Forest Service initiate planning for such a survey to facilitate the permitting process.

An underwater dive survey should be conducted at each of the four sites to (1) evaluate the biological resources, (2) delineate the areal extent and outer boundary of bark accumulation, and (3) estimate the thickness and percent cover of bark debris. This underwater survey would allow our agency and the public to evaluate whether accumulation of bark from the continued operation of the Shrimp Bay, Fire Cove, and Shelter Cove LTF sites (and the establishment of a new LTF at Carroll Inlet) may result in a direct and/or cumulative impact to the marine environment.

Furthermore, the final EIS should include the following descriptive information:

- 1) Description of the existing LTFs, including transfer devices (e.g., cranes, low-angle slide, A-frames (single or double with a mechanism for controlling speed), log slides, log bundle conveyors, drive down ramps, etc.) and sorting and storage areas;
- 2) Past estimate of timber volume (MMBF) handled by the existing LTFs.
- 3) Estimated volume of timber to be handled by each LTF with the implementation of the proposed sale.

Purpose and Need

It is difficult to determine why a timber harvest volume of 70 million board-feet (MMBF) is explicitly identified in the purpose and need section of the draft environmental impact statement (EIS). While we understand the purpose and need for the project is 1) to satisfy elements of the KPC contract and 2) to move toward the desired future condition of the forest as identified in the Tongass Land Management Plan (TLMP), the EIS does not explain why the harvest volume associated with this particular sale is necessary to meet those needs.

We believe there are issues related to National Environmental Protection Act (NEPA)

implementation that arise by explicitly specifying a harvest volume in the purpose and need section of the draft EIS. For example, in stating that the needed volume from the proposed project is 70 MMBF, we believe that the range of alternatives has been limited to those that would meet the identified volume. We believe that both the KPC contractual obligations and movement toward the desired future condition of the forest can likely be met through a wider array of harvesting options than those identified in the draft EIS (perhaps smaller, dispersed timber sales). Furthermore, in defining a specific volume for this project, we have concerns that critical decisions in the planning process (i.e., determination of the target volume) may have been made without adequate public involvement.

Additionally, we have some concerns that the specification of a target harvest volume in the purpose and need section of the draft EIS may conflict with the Forest Service's stated direction of using "ecosystem management" in their decision-making process. We believe that the approach being taken in this EIS is to manage the ecosystem "around" the desired timber harvest level instead of identifying the elements needed to maintain a healthy ecosystem and evaluating the project alternatives in relation to those needs. We believe that a management approach which is driven by pre-defined harvest levels will not ensure maintenance of a truly healthy ecosystem within (and outside) the project area.

The draft EIS does not provide any information related to the process used in defining the target timber harvest volume, and why it is judged to be "needed." At a minimum, the final EIS should identify the process used in determining the target harvest volume identified in the draft EIS, and how that process relates to the concerns identified above. This "pipeline" analysis should present the proposed 70 MMBF volume identified in the draft EIS along with all other planned timber sales (and volumes) to provide reviewers an understanding of overall harvest needs relative to the KPC contract requirements.

Water Quality Standards

A limited discussion of Alaska WQS is presented in the Chapter 3 of the draft EIS. Timber harvest and road construction will affect water quality. Unfortunately, this discussion fails to include a discussion of the WQS related to turbidity and fine sediments in gravels. Because management activities associated with the proposed action will result in affects directly related to these parameters (sediment delivery to streams), a discussion of the applicable WQS should be included in the EIS. Without a discussion of these WQS, along with associated project-related impacts, we are unable to determine how the action alternatives will be consistent with the WQS.

The statements on page 3-16 that "the application of BMPs and standards and guidelines will minimize sediment delivery by controlling surface erosion from roads and harvest units" by "avoiding or minimizing landslide and surface erosion potential" appear to be inconsistent with information presented in both the Soils and Associated Ecosystem section of the EIS (beginning on page 3-25) and analyses contained in Appendix F. Alternative 5 (the preferred alternative) would result in timber harvest activities and road construction taking place in areas within the

Carroll River watershed that have been identified as having high and very high soil mass movement indices (indicating their susceptibility to landslides and surface erosion) and, therefore, a high sediment transfer potential. This does not appear to agree with the statement indicating that landslide and surface erosion potential will be avoided or minimized and consequently impacts to water quality and fish habitat would be minimized. Clarification of these apparently conflicting statements is particularly important when one considers that sub-basin S5 of the Carroll River watershed is also a high-productivity anadromous fish habitat.

The statements related to the application of BMPs and standards and guidelines on page 3-16 also imply that WQS will be met if BMPs are implemented. We believe this conclusion is misleading since no information related to the effectiveness of the management practices to be employed has been reported in the EIS.

The achievement of WQS for nonpoint source (NPS) activities is intended to result from the implementation of BMPs. BMPs are to be designed to achieve WQS, which would include applicable water quality criteria (WQS consist of both designated beneficial uses and the criteria necessary to protect the uses, and an antidegradation policy). In other words, the water quality criteria are the measures by which BMPs are judged to achieve water quality protection. In addition, the antidegradation policy explicitly lays out that existing beneficial uses must be fully protected.

Also, BMP application does not equal standard compliance. The key issue however, as previously stated, is that findings of effectiveness monitoring efforts on the Tongass National Forest, and in the Ketchikan Area specifically, have not been reported or referenced in this EIS. Consequently, assurances of compliance with WQS are not meaningful with this fundamental link missing. BMPs are assumed to protect water quality, but monitoring must be conducted to determine if that is truly the case. If they are not protective, then the BMPs must be revised. This reinforces the need to successfully complete the monitoring studies proposed in the draft EIS.

Antidegradation

EPA believes that the proposed project could potentially exceed WQS so that the fisheries beneficial use will not be fully maintained, thereby violating the federal antidegradation policy. An antidegradation analysis, as specified in the Antidegradation Policy [40 CFR 131.12], should be included in the final EIS. This policy was developed to achieve the goals of the Clean Water Act, which are to restore and maintain the chemical, physical and biological integrity of the nation's waters.

The Antidegradation Policy describes three tiers of protection. Briefly:

Tier 1:

No activity is allowable which would partially or completely eliminate any existing beneficial use of a water body, whether or not that use is designated in a state's WQSs. If

an activity will cause partial or complete elimination of a beneficial use, it must be avoided or adequate mitigation/preventive measures must be taken to ensure that the existing uses and the water quality to protect those uses will be fully maintained.

Tier 2:

Where the quality of the waters exceed "fishable/swimmable" levels ("high quality waters"), that quality shall be maintained and protected unless the following are completed:

- 1) a finding that such degradation is necessary to accommodate important economic or social development in the area in which the waters are located.
- 2) full satisfaction of all intergovernmental coordination and public participation provisions, and
- 3) assurance that the highest statutory and regulatory requirements and BMPs for pollutant controls are achieved.

Please note that this provision is intended to provide relief only in extraordinary circumstances where the economic and social need for the activity clearly outweighs the benefit of maintaining water quality above that required for "fishable/swimmable" water. The burden of demonstration on the party proposing such activity is very high. In any case, the activity shall not preclude the maintenance of a "fishable/swimmable" level of water quality protection.

Tier 3:

Where "high quality waters" constitute outstanding national resources, that water shall be maintained and protected. As with the other tiers, the state determines the "tier" of the water body. If necessary, EPA can provide guidance on determining water quality status.

Federal Consistency Provisions of §319 of the Clean Water Act

The final EIS needs to fully integrate §319 of the Clean Water Act. Existing water quality conditions in the National Environmental Policy Act documents need to reflect and reference the state's water quality assessment. Direct or indirect nonpoint source water quality effects need to be reduced through design and mitigation measures to ensure that the project is consistent with the state's NPS program. The contact for the Alaska Department of Conservation is:

Jim Ferguson
Forestry Services Team Leader
Alaska Department of Environmental Conservation
Phone: (907) 465-5365

Affected Environment and Environmental Consequences

We are concerned with the lack of quantitative information presented in the draft EIS in

general, and specifically related to compliance with Alaska Water Quality Standards. This is the case in the assessment of existing conditions as well as in reporting expected impacts associated with the project alternatives. As a result, it is extremely difficult to determine the current state of the ecosystems within the project area (baseline conditions) or the significance of the impacts to those ecosystems for each of the project alternatives. While surrogate indicators are provided throughout the EIS which give some gross indication of the potential to impact water quality in a relative sense (e.g., number of stream crossings, acres of roads and disturbed soils, etc.), there is little information provided that allows the reader to translate these indicators into what conditions presently are or are likely to be in the affected streams in an absolute sense. Because insufficient information exists to indicate whether streams within the project area currently comply with or exceed WQS, it is difficult to determine whether any of the proposed alternatives would pose unacceptable risks to water quality and fish habitat.

While we believe that baseline water quality data is most useful when collected before alternative development and selection, we are pleased to see that monitoring of the Neets Creek and Carroll River watersheds will be conducted as part of the proposed project. The information derived from this effort should prove to be useful in developing an understanding of baseline conditions and the effectiveness of BMPs applied within those watersheds.

Environmental Effects Outside the Project Area

The draft EIS indicates that the project would "indirectly" affect air quality in the vicinity of the KPC mill at Ward Cove. Similarly, the project would also "indirectly" affect water quality in Ward Cove as well as Thorne Bay. The EIS states that KPC is responsible for ensuring that emissions impacting air and water quality are within legal limits. While it may be somewhat a matter of semantics, we believe that potential impacts in the vicinity of the KPC mill and at Thorne Bay are direct impacts from the proposed timber sale as they are a direct consequence of the proposed action. Furthermore, while we agree that KPC is responsible for meeting permit requirements, we believe that additional discussion of these potential impacts should be included in the EIS to satisfy the implementing regulations for NEPA (40 CFR 1502, section 1502.16). For example, what are the current air and water quality conditions in the vicinity of the KPC mill and Thorne Bay and what impacts to those conditions are likely to result from each proposed project alternative? Are there permits currently in place? What types of permits? What is the status of those permits? The EIS should be revised to include a discussion/ evaluation of the direct project-related impacts "outside" of the project area.

Economic and Socioeconomic Analyses

The draft EIS indicates that the IPASS model was used to evaluate the effects of the proposed project on employment and earnings in Southeast Alaska. First, the EIS present no description of the model and its structure. Without an understanding of the modeling approach being employed, it is difficult to understand what the modeled results really mean. This information should be included in the final EIS.

We have questions related to the consistency of economic analyses being conducted for different timber sale EISs on the Tongass, and within the Ketchikan area specifically. For example, the Control Lake EIS employed the IMPLAN model to predict economic effects associated with that project while the IPASS model was used for this project. Why have different models been used? How do the models differ? What are the implications of the use of different models? This should be clarified in the final EIS.

Table 3-80 presents base year information for the "Ketchikan Area Primary Influence Zone Input-Output Model." Because no discussion of this model is presented in the text, we are unable to determine what this model is/does or how it relates to the IMPLAN or IPASS models. We recommend that this be clarified in the final EIS. Additionally, we believe that a comparison of the number of jobs model output presented in the last column of the table with statistics compiled by the Alaska Department of Labor would provide useful insights into the utility of the model for predicting jobs.

Present Net Value should be defined as the difference between the discounted benefits and discounted costs associated with the alternatives.

Several tables in this section refer to Marks (1995) and Matson (1995). These references are not contained in the reference section of the EIS. We recommend that they be included in the final EIS.

